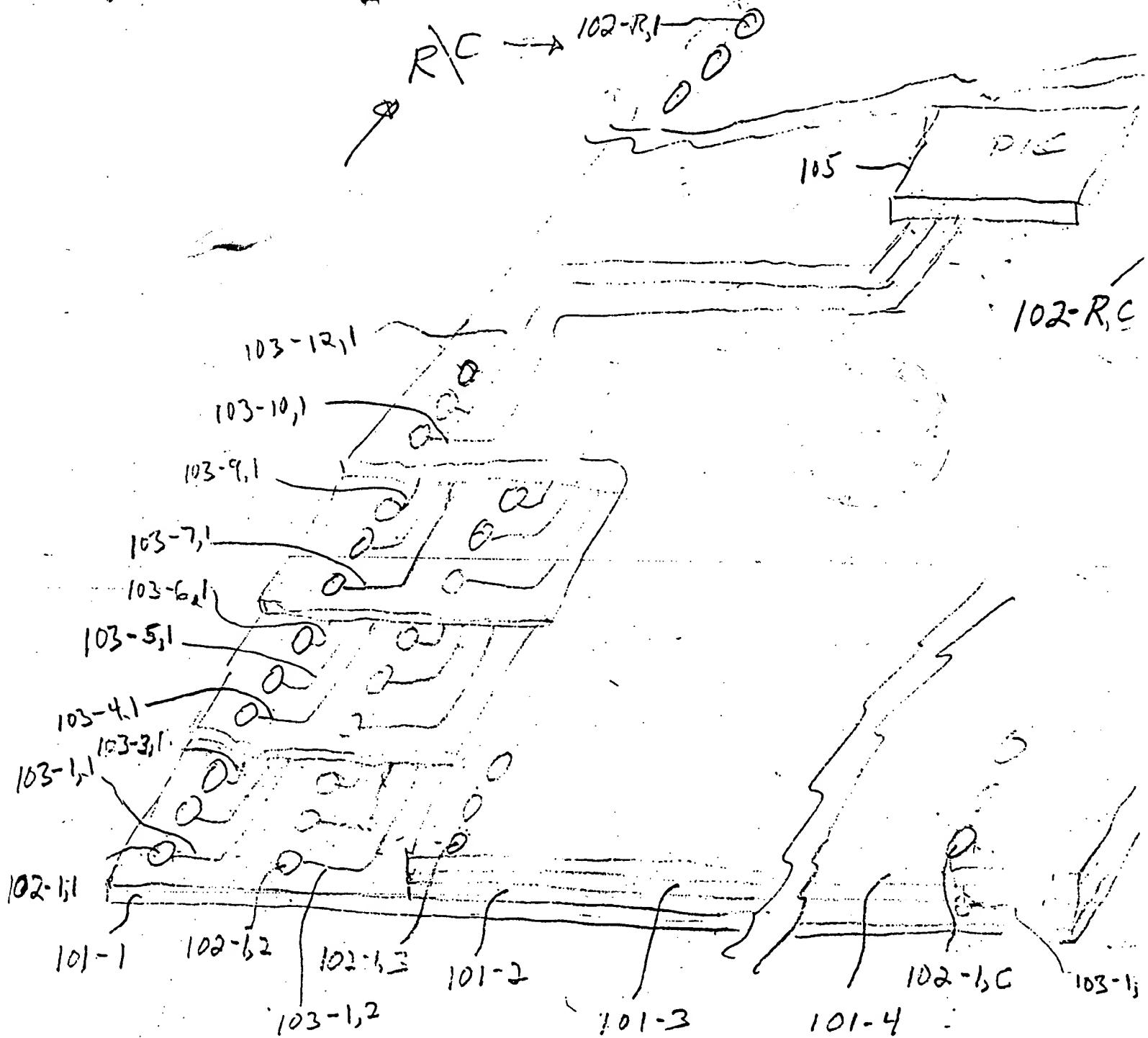


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Component Plated -

Through holes which
accept electronic component
leads

100

R.C

101-N

FIGURE 1a

24

08/6/32298

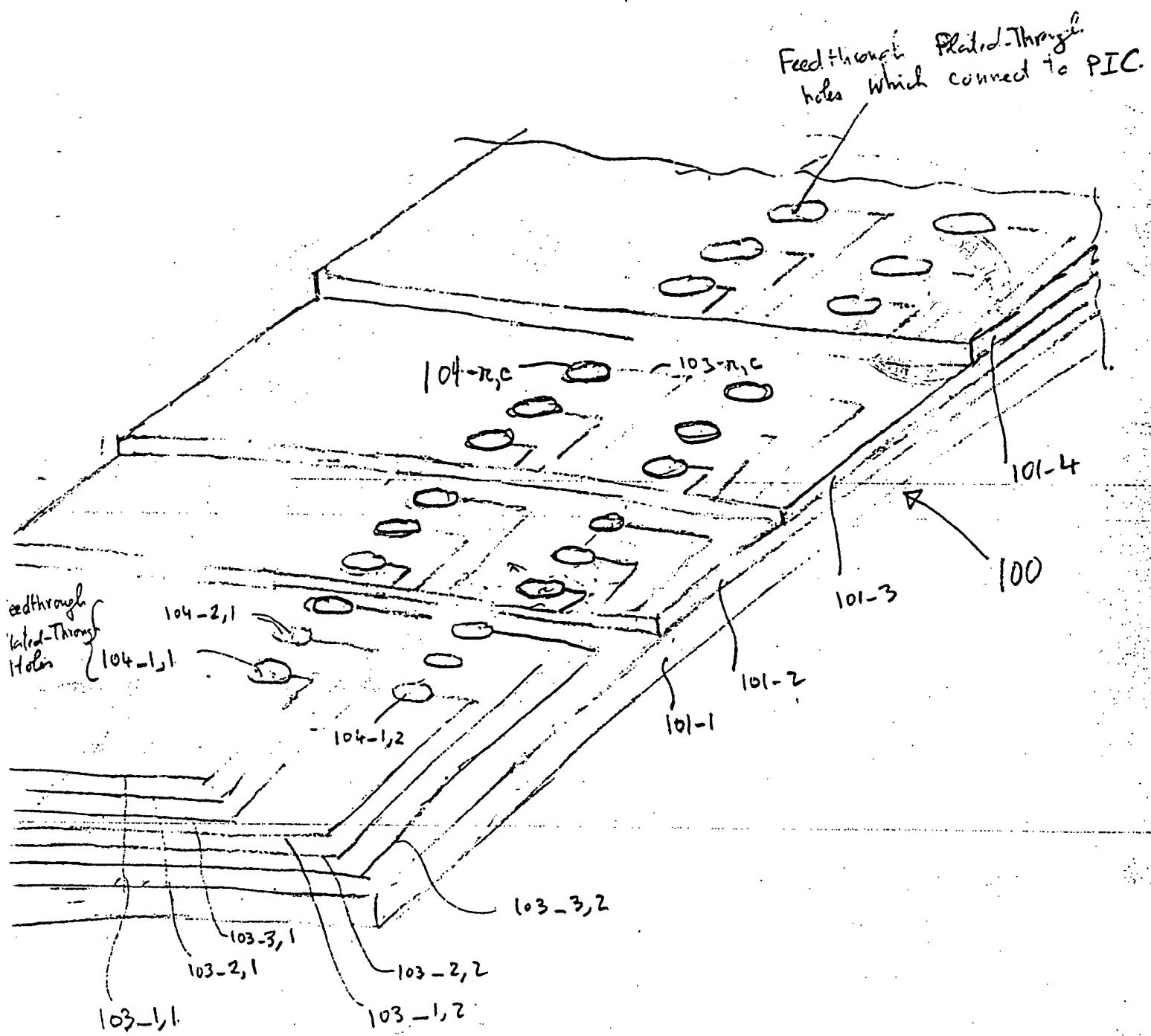


FIGURE 18

08/63 ECL78

— 100

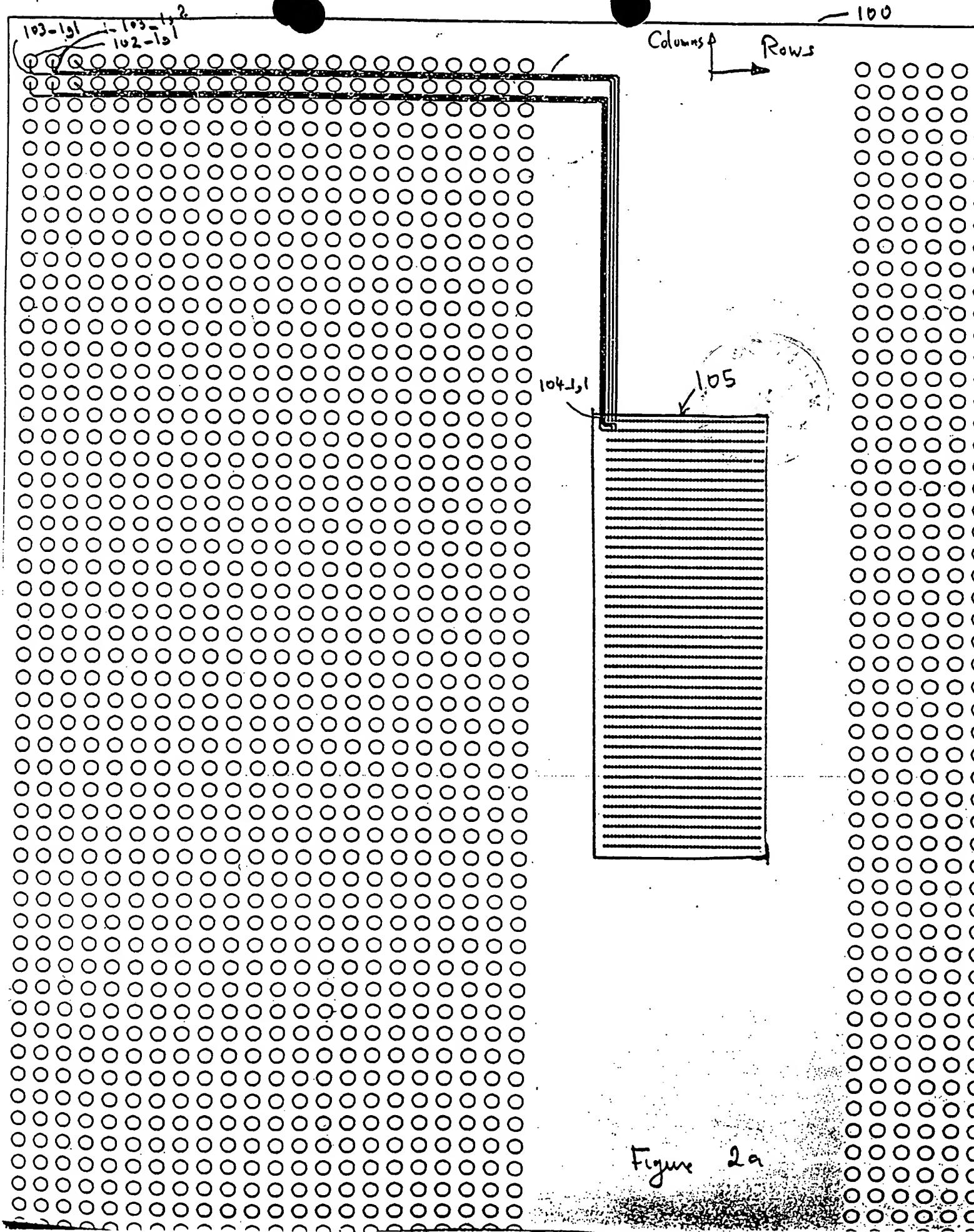


Figure 2a

09/03/2298

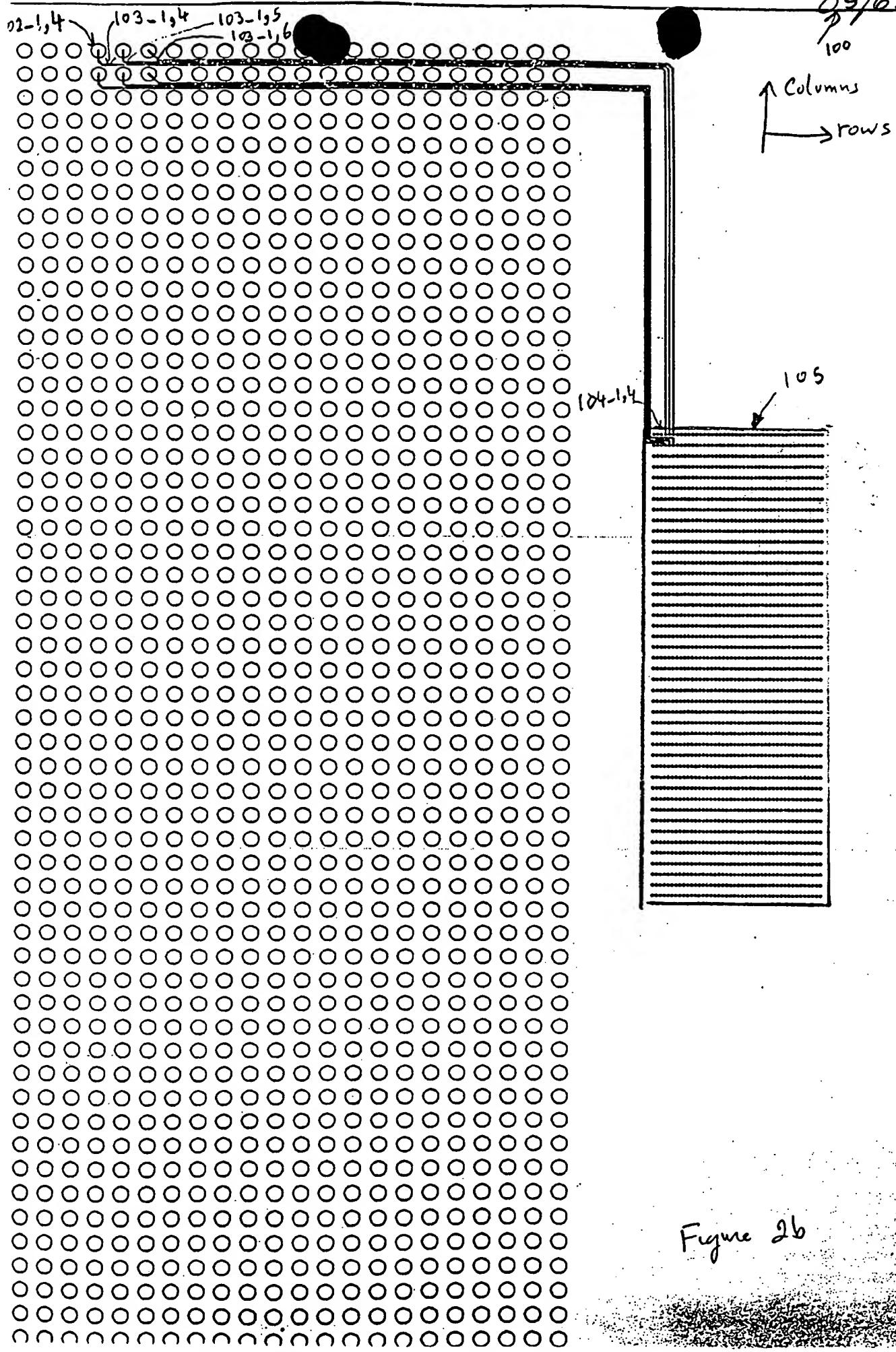


Figure 2b

09/03/2298

K 100

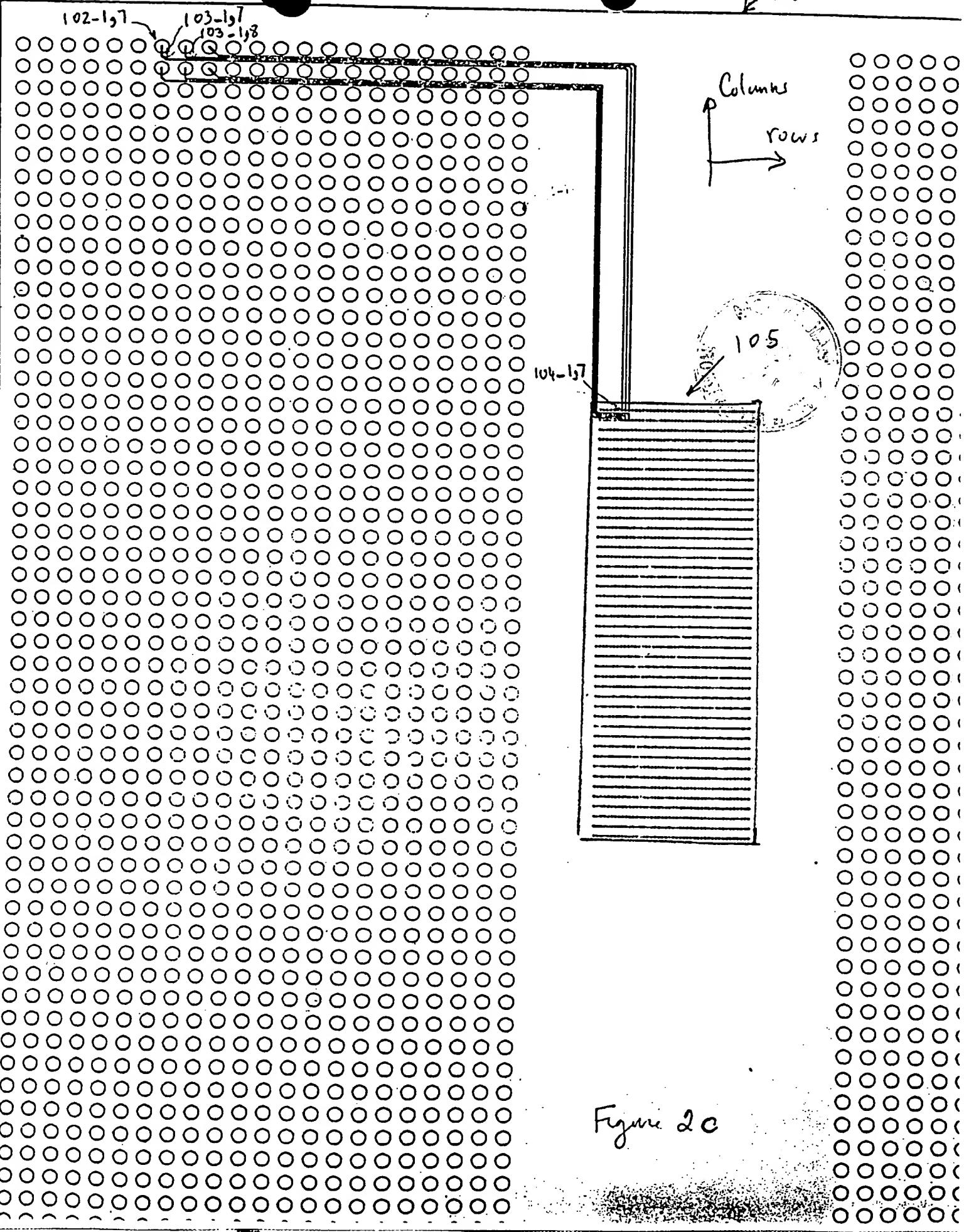


Figure 2c

08/03/2299
100

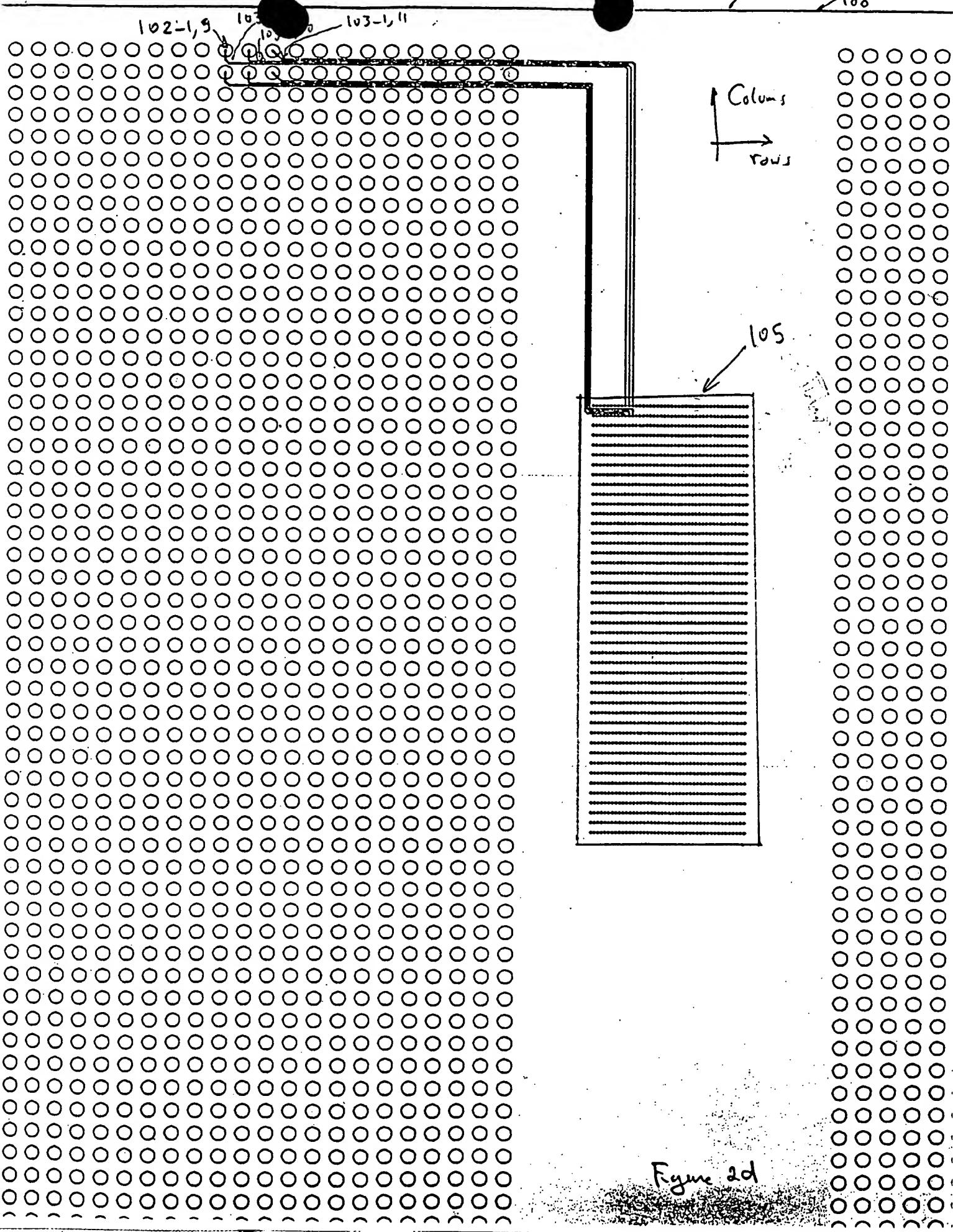


Figure 2d

GLOBAL INTERCONNECT ARCHITECTURE

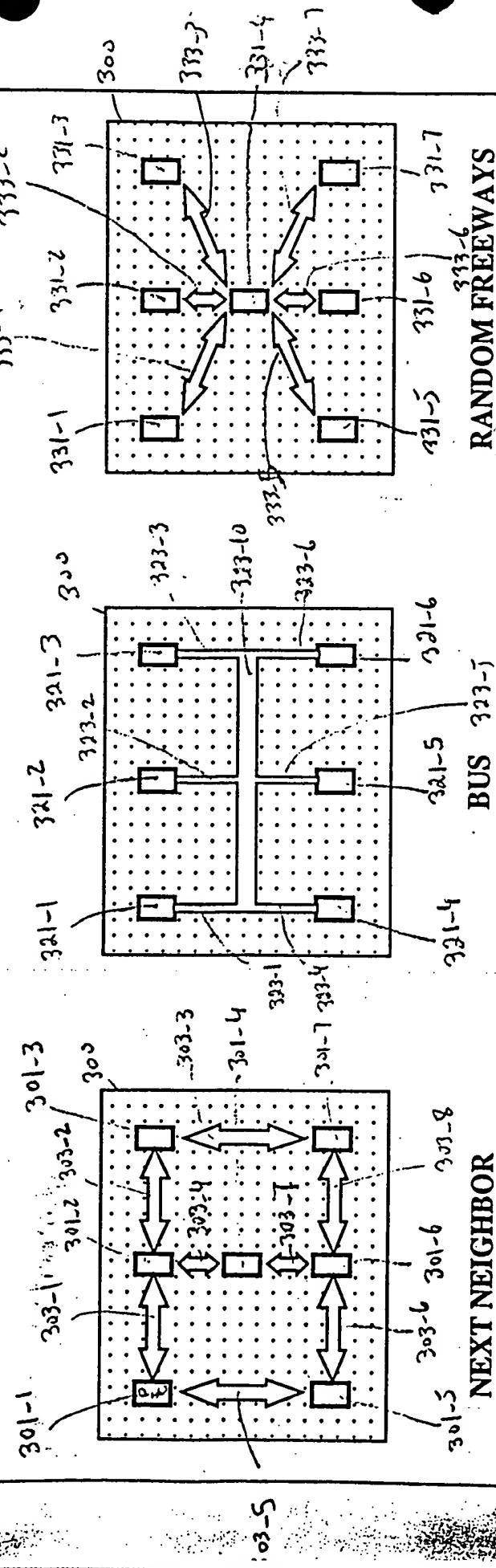


Figure 3a

Figure 3c

Figure 3d

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Hierarchy of Global Interconnects

FREEWAY-SYSTEM

Next Neighbour

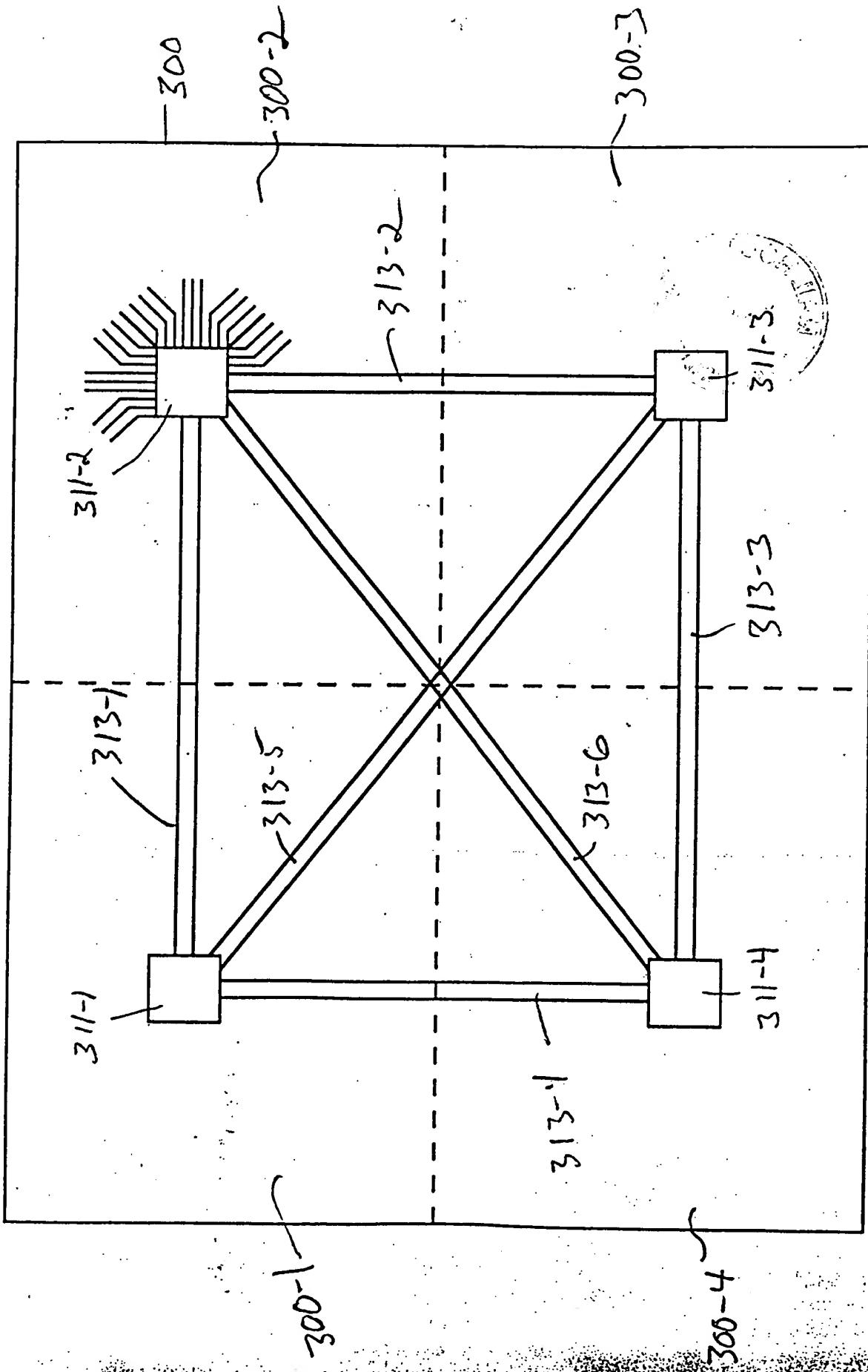
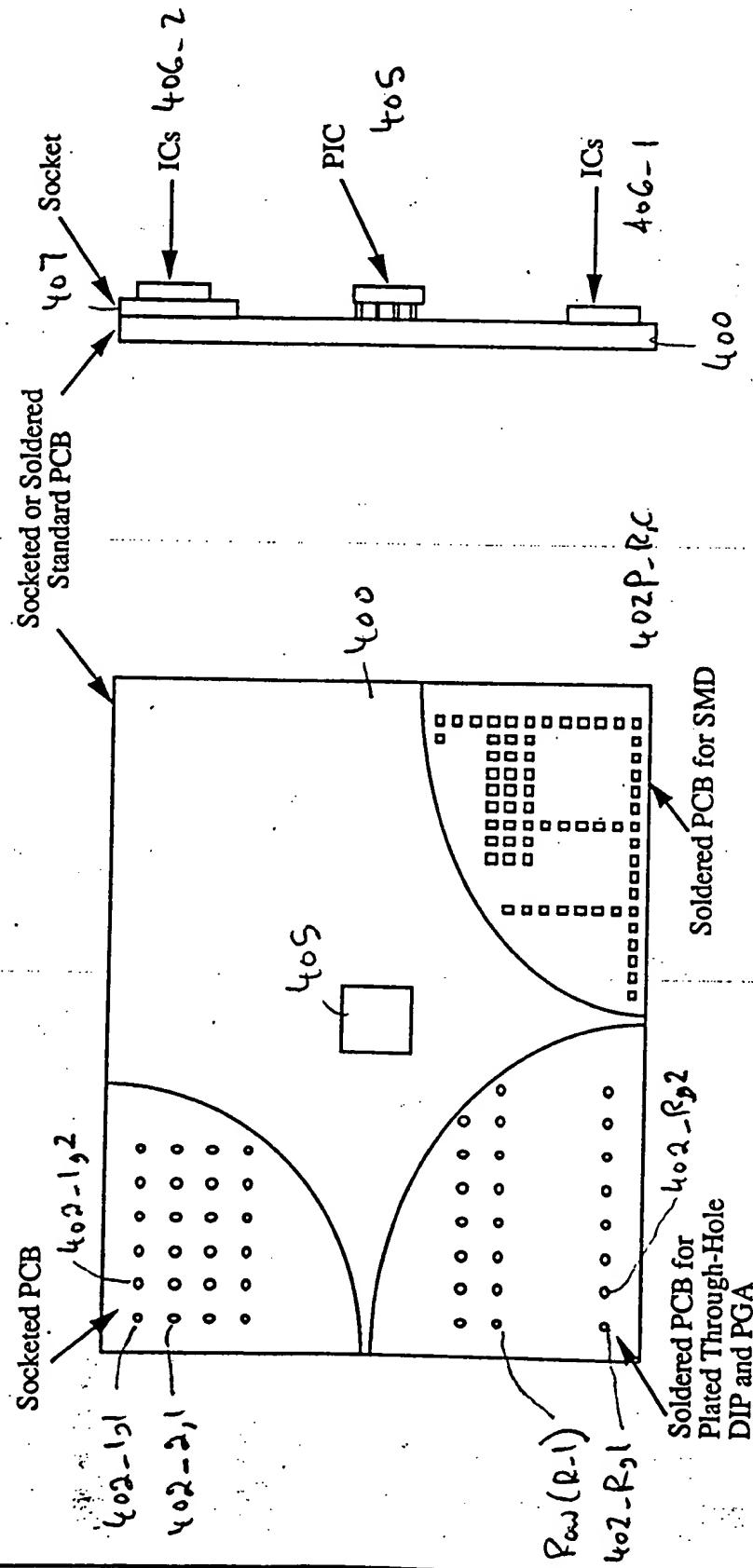


Figure 36

FIELD PROGRAMMABLE PCB



Tuguegarao

Figure 14b



407 - R_{9C} Figure 4 C.

08/632298

Control and TESTPORT/DIAGNOSTIC TOOL

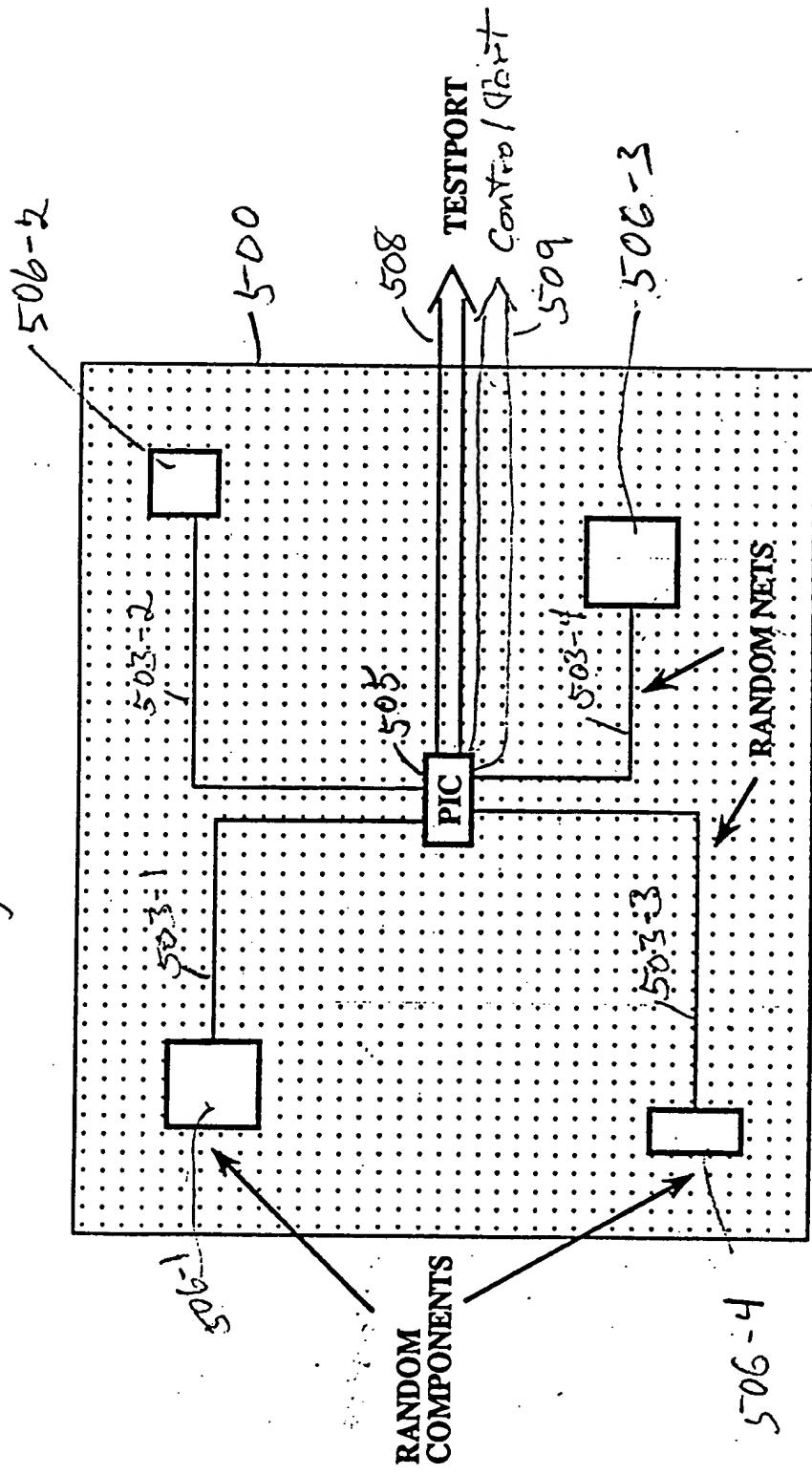


FIGURE 5

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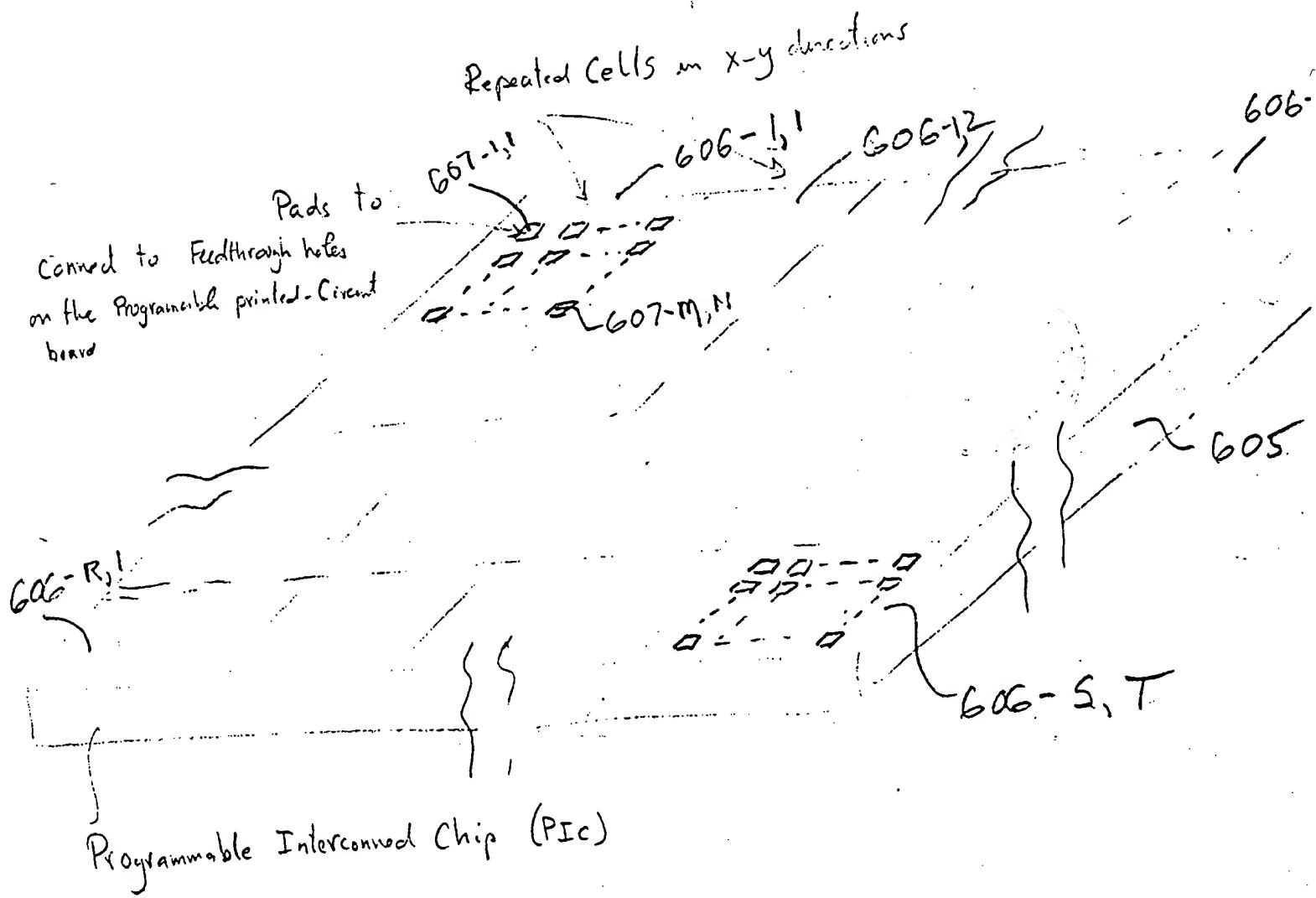
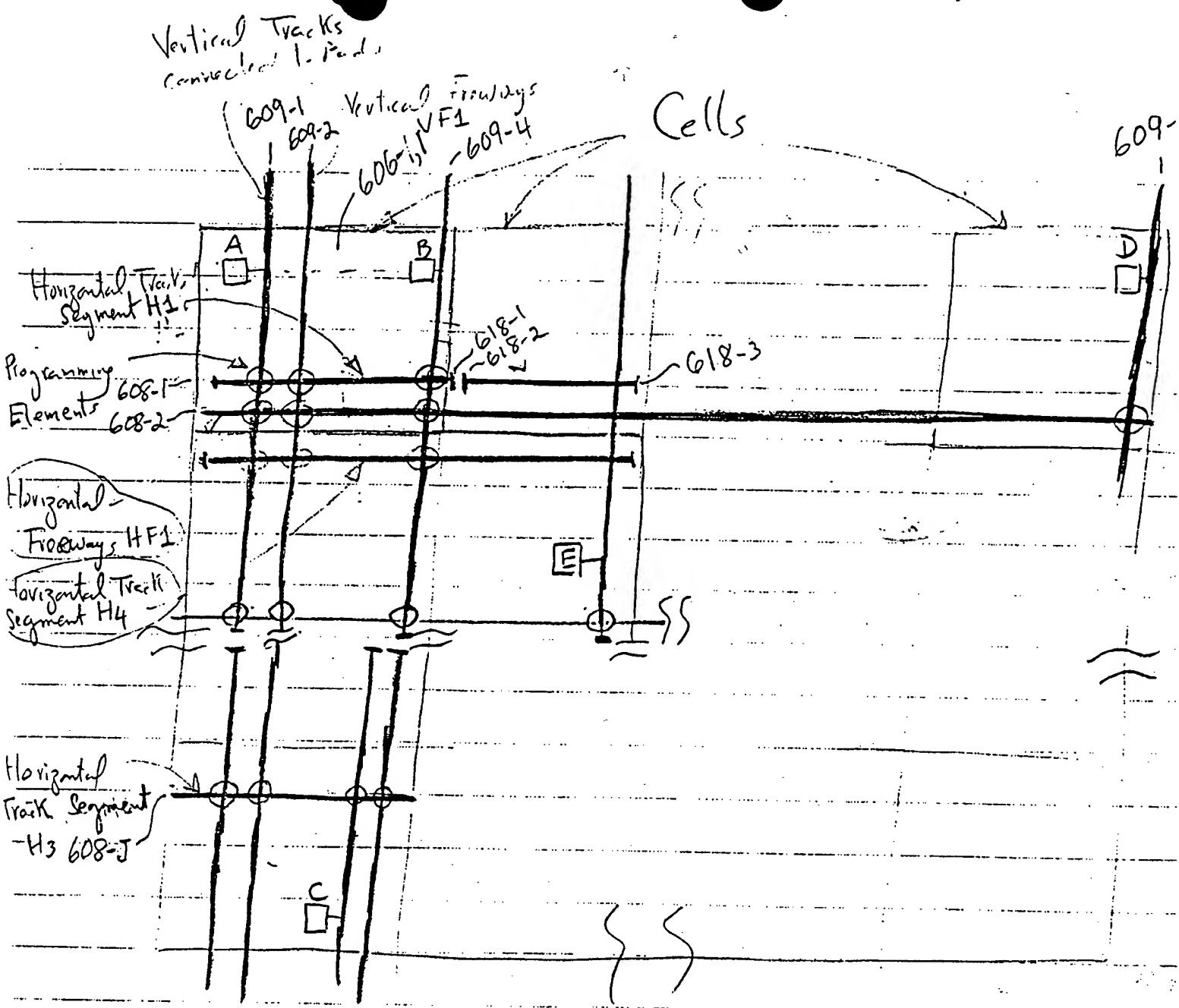


FIGURE 6a

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To connect A to B program elements at Intersects (A-H1) and (H1-VF1)

A to D " (A-HF1) and (HF1-VF1)

A to C " (A-H1), (H1-VF1), (VF1-H3) and (H3-C)

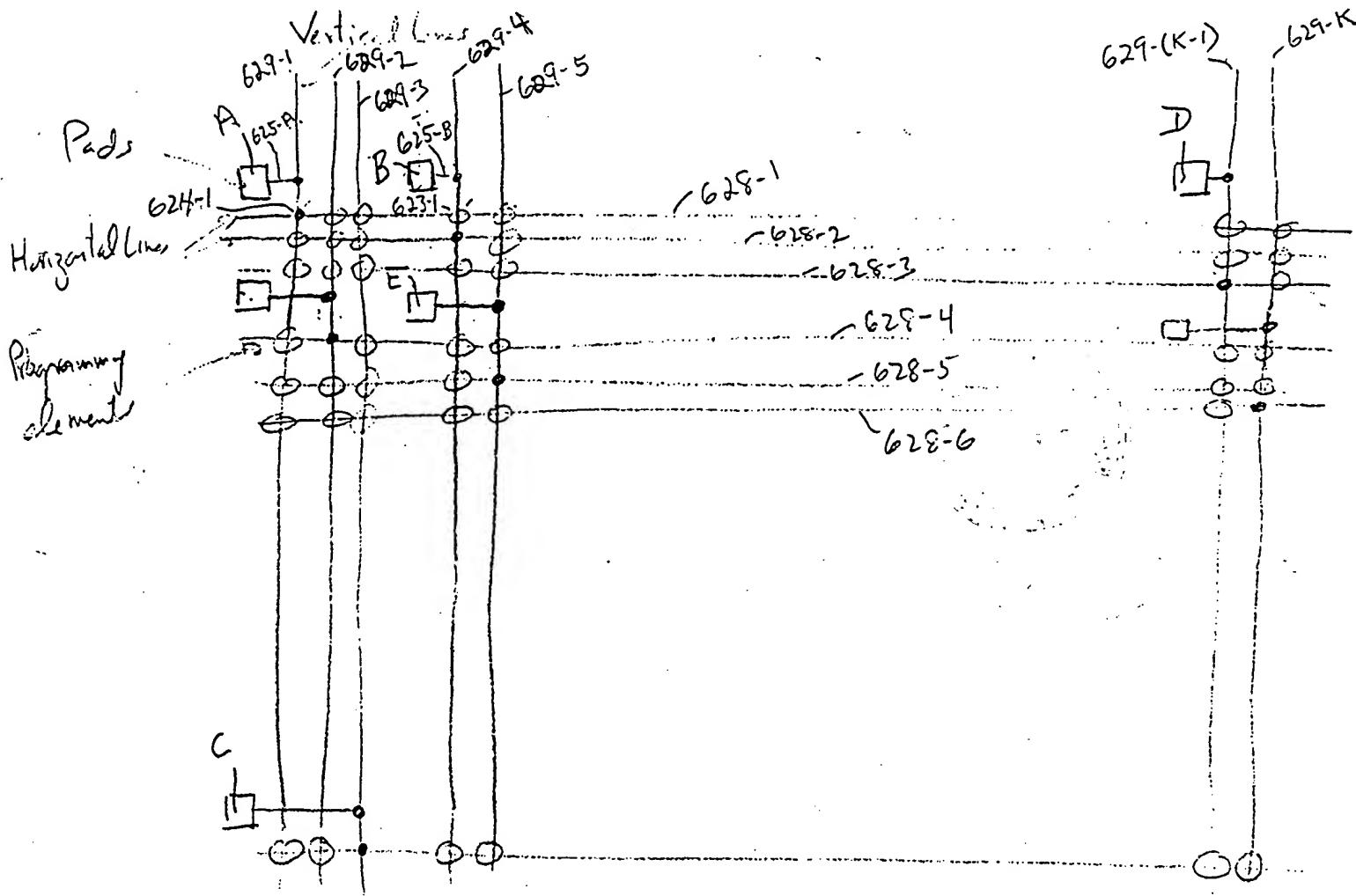
A to E " (A-H4) and (H4-E)

Divided Cross-Point Switch - Matrix Array of the PIC

FIGURE 6B

09/632298

Single Crosspoint Switch-Matrix way of PIC

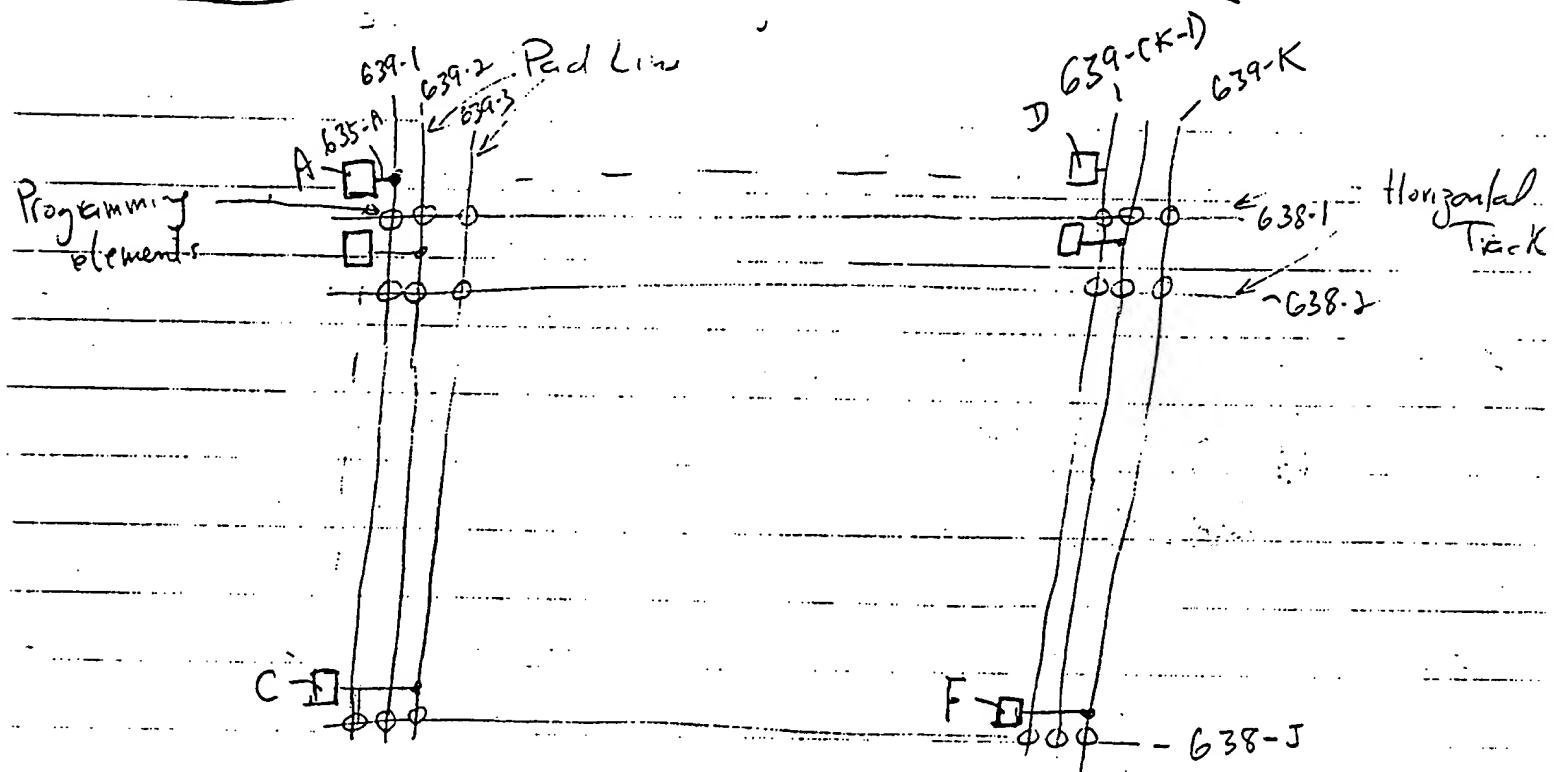


- Each pad connects to a vertical line.
- Each vertical is connected to a horizontal lines
- Connection of one pad to another include one programming element
- Inefficient as number of pads become large (eg 100 - 300)
- Total number of programming elements = $(\text{No. of Pads})^2$

FIGURE 6c

08/632298

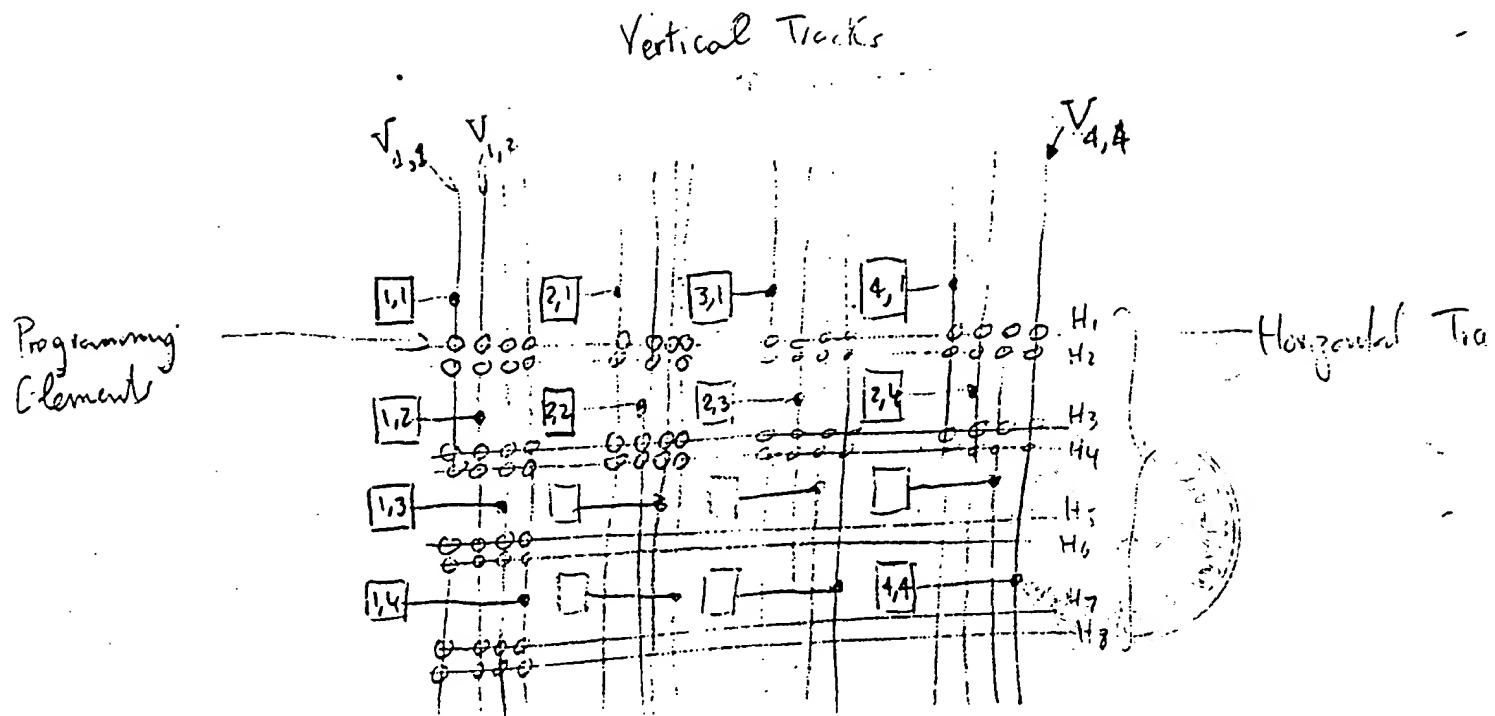
Single Cross-point Switch - Matrix Array of PIC



- Each pad connected to a vertical line
- Number of horizontal lines $\leq \frac{1}{2}$ number of vertical lines
- Connection of one pad to another include two programming elements
- Number of programming elements $\leq \frac{1}{2} (\text{Number of pads})^2$
- Inefficient as number of pads become large (For example above 200-500)

FIGURE 6d

08/6/32298



Single Cross-point Switch-Matrix Array Form 16 pads

To connect pad (1,1) to pad (4,1)

Program elements at Intersects of $(V_{1,1} - H_1)$ and $(H_1 - V_{4,1})$

To connect pad (1,2) to pad (4,4)

Program element at Intersects of $(V_{1,2} - H_3)$ and $(H_3 - V_{4,4})$

FIGURE 6e

08/632298

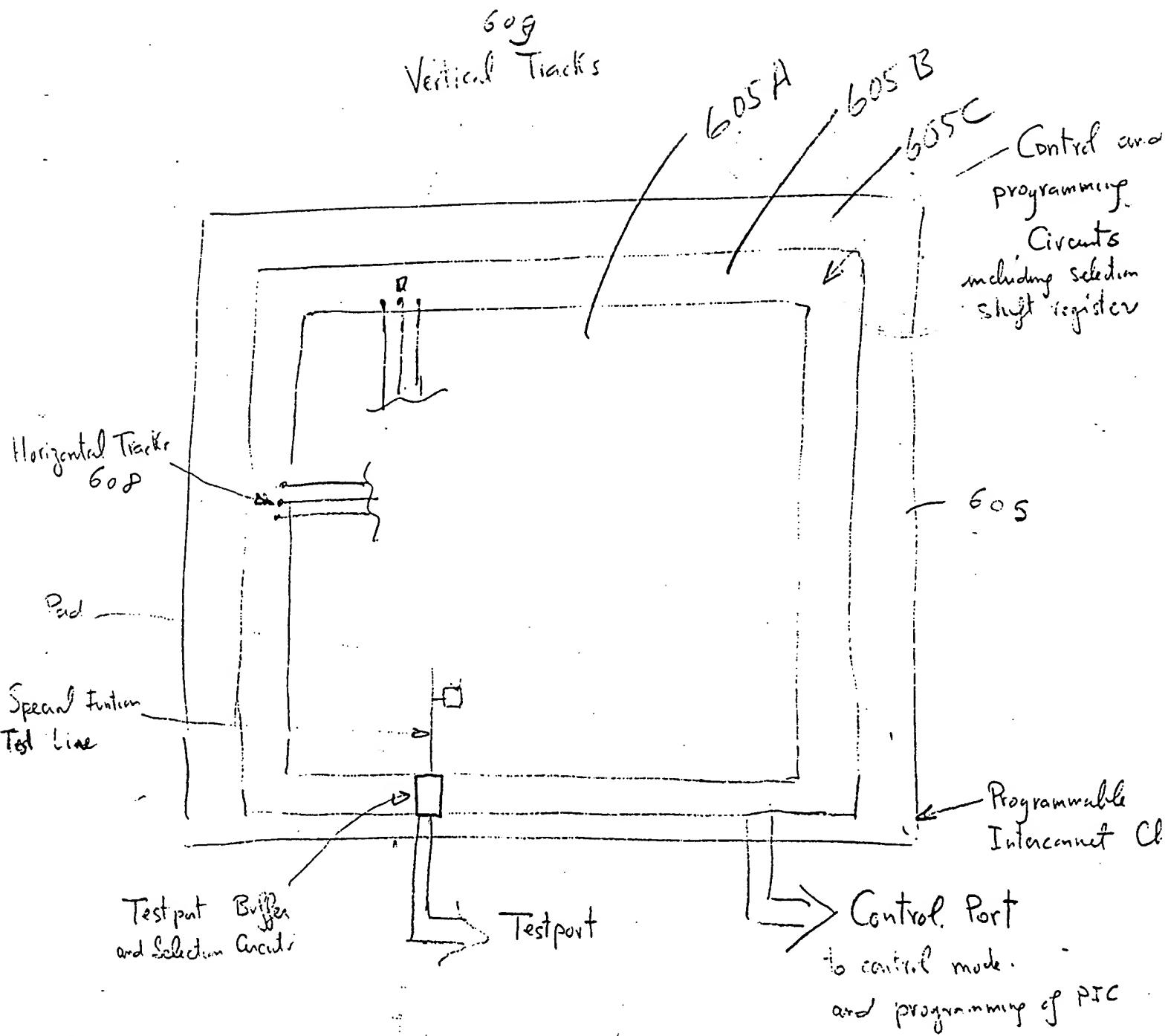
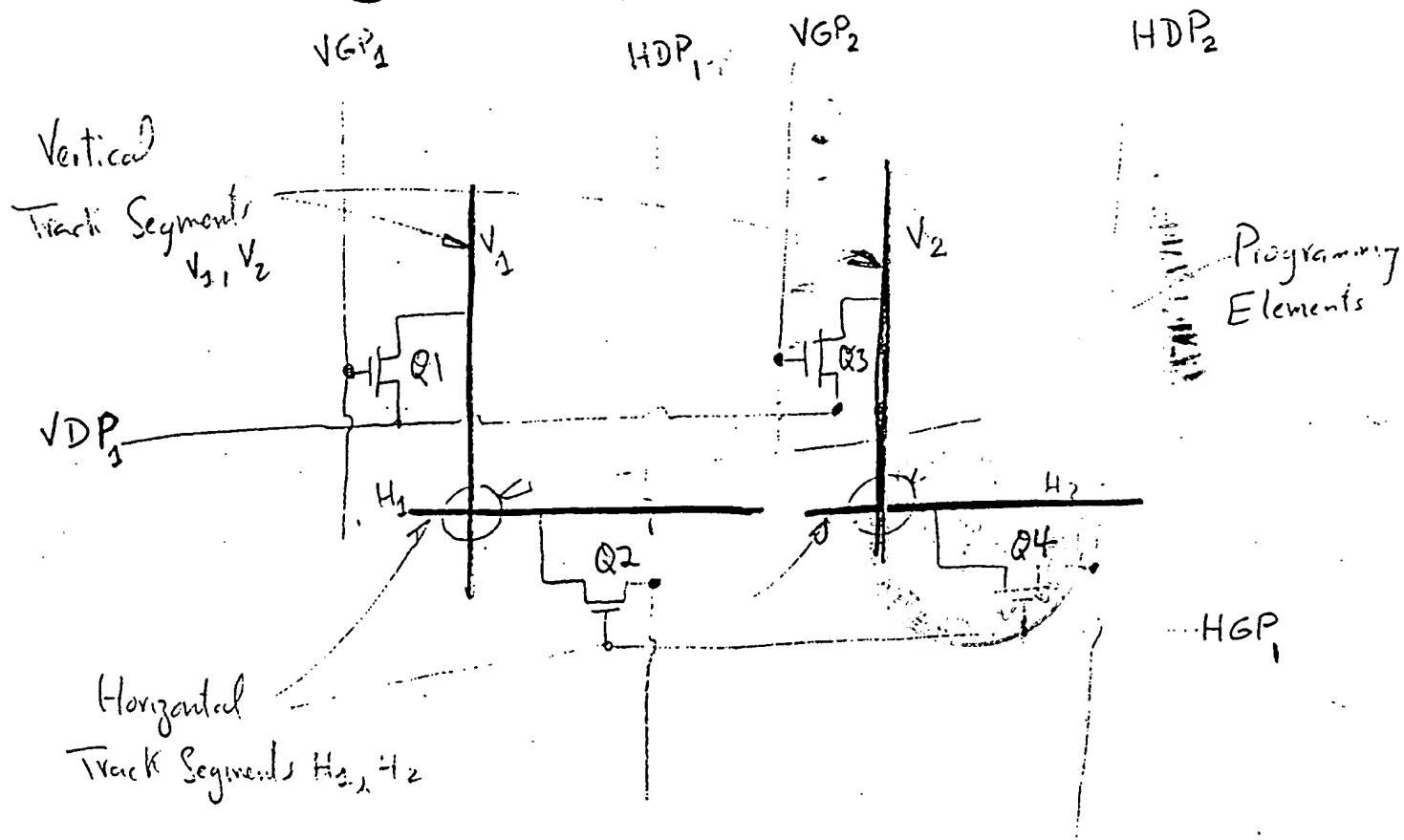


FIGURE 7a

08/632298



Programming Scheme to select Horizontal and vertical segments in the PIC with only two transistor in Programming circuit path to allow current to reach hundreds of mAmps.

To program H_1 to V_1 , Take $VGP_1 = V_{GH}$, $VGP_2 = 0$, $VDP_1 = V_{pp}$, $HGP_1 = V_{GH}$, $HDP_1 = 0$, $HDP_2 = 0$

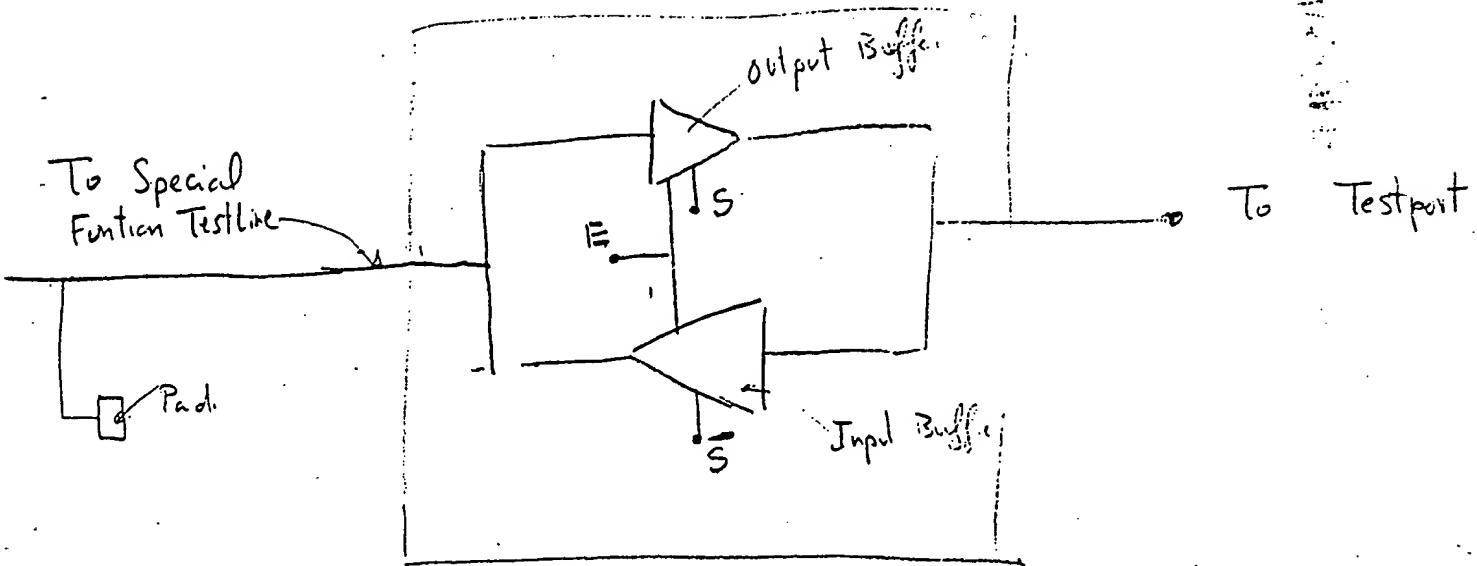
Where V_{pp} is the programming voltage ~ 15 to 50 Volts

V_{GH} is larger than V_{pp} by transistor threshold voltage ~ 1.8 to 5.3 V

Only Programming element at Interface of track segments H_1 and V_1 see the full programming voltage V_{pp}

FIGURE 72

09/6322.95



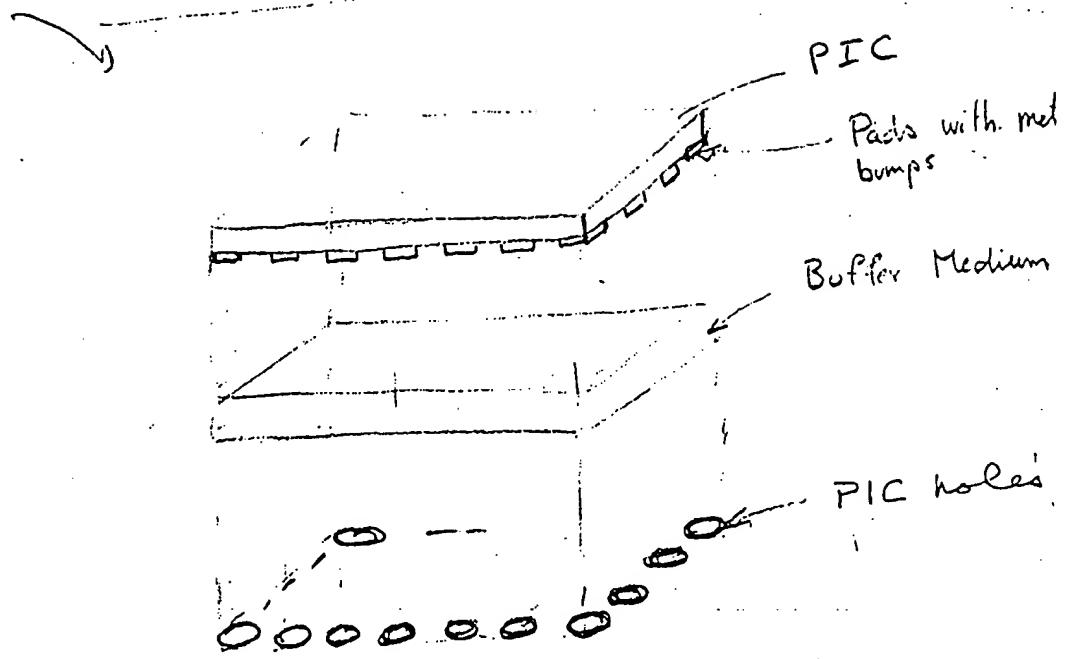
S Selects output or input buffer

E Selects the pad to connect to test port

FIGURE 7c

09/6322.98

board
Printed-Circuit Surface



Buffer Medium ① Elastomeric material made of polymer with z-axis conductors
5-100 mils thickness

② Carrier of Button springs

EIGIIRF 80

09/6/32298

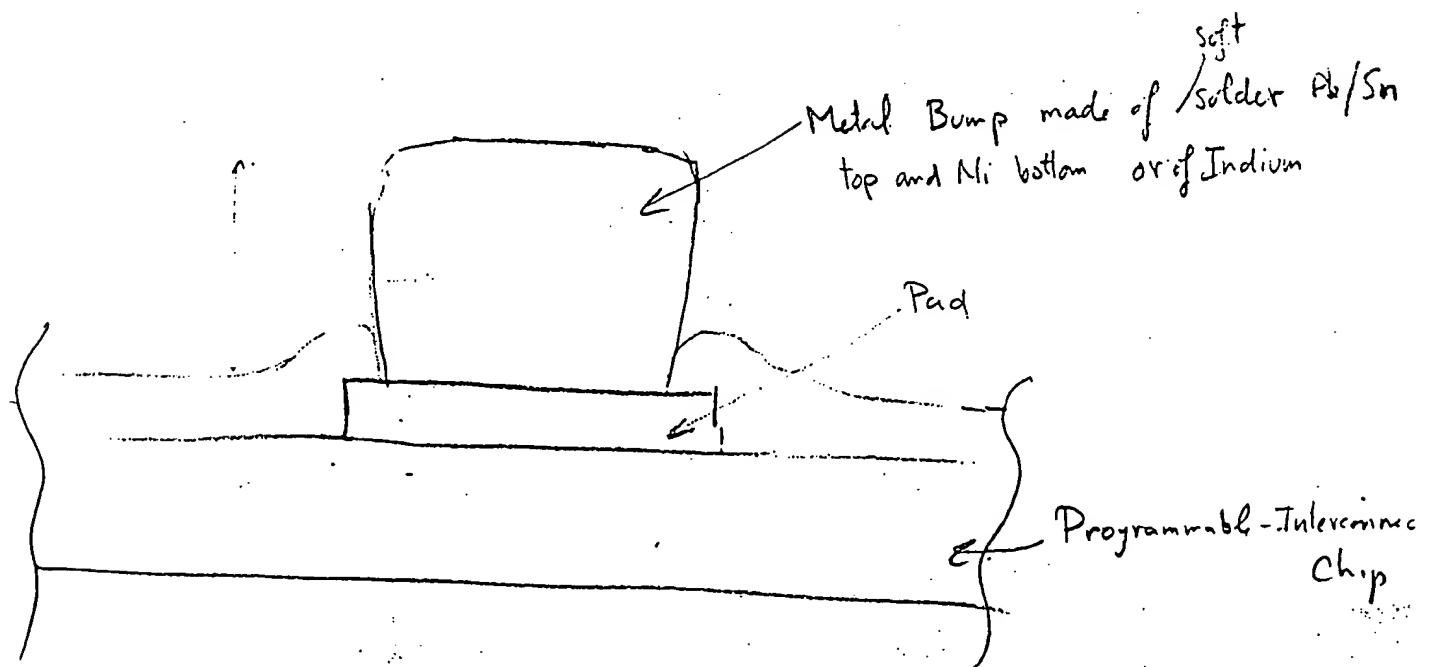
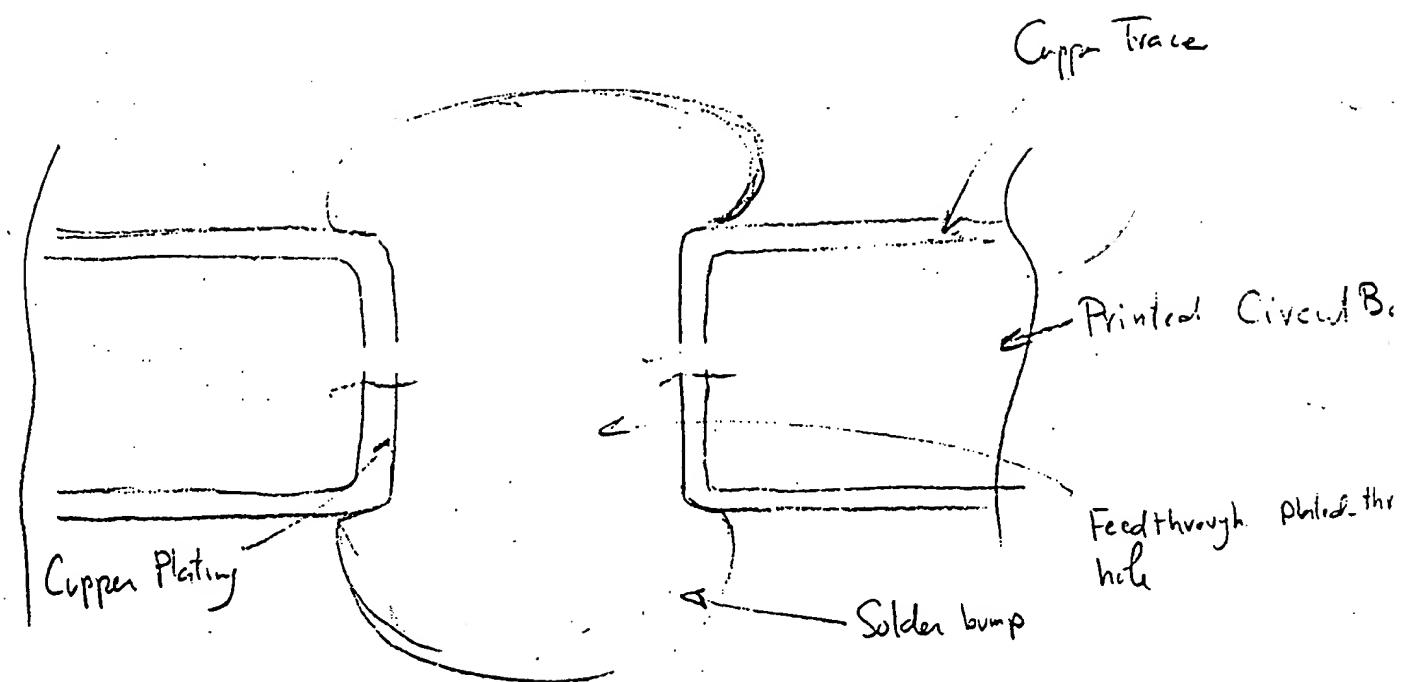


FIGURE 8f

M-1007

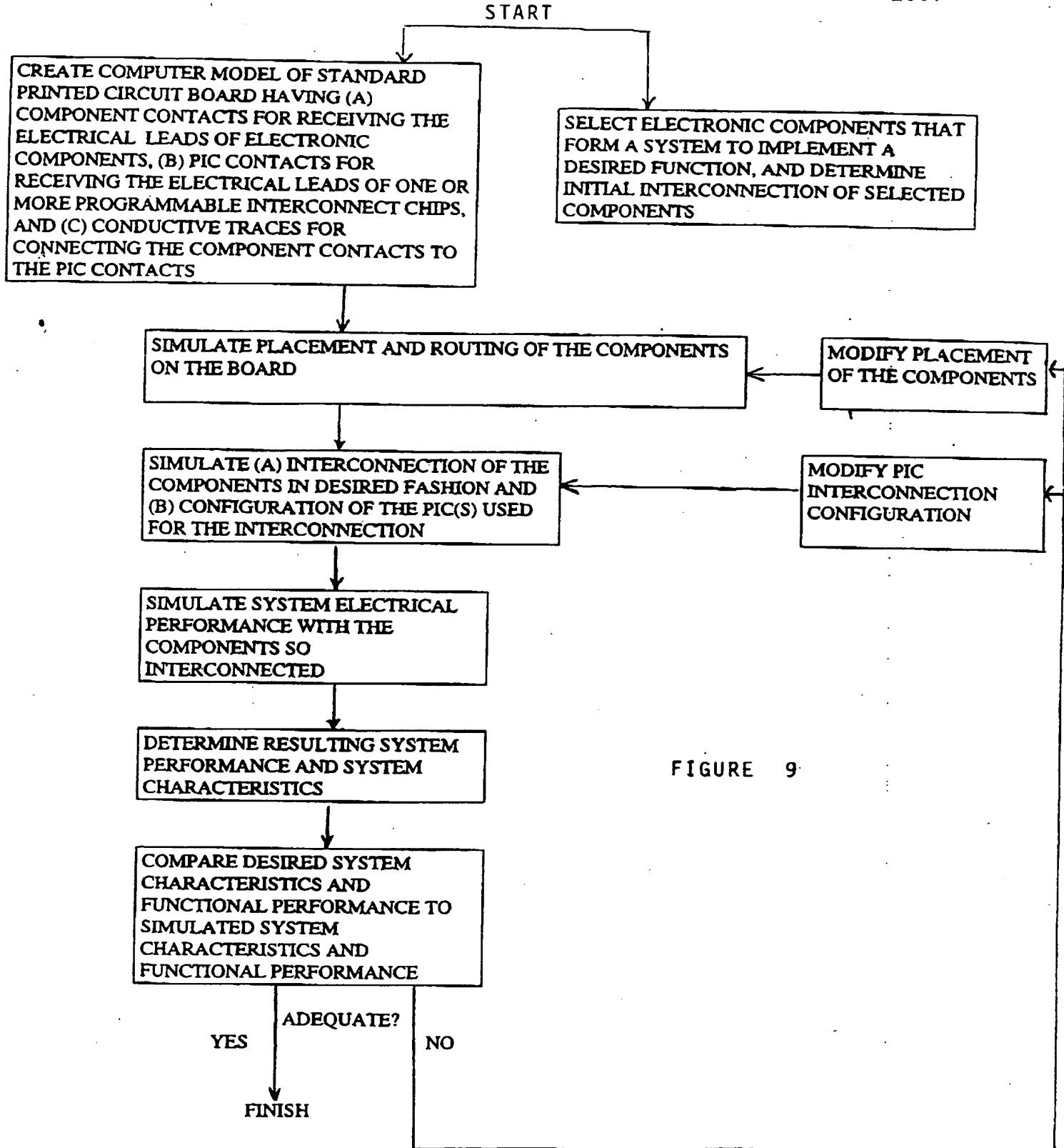


FIGURE 9